

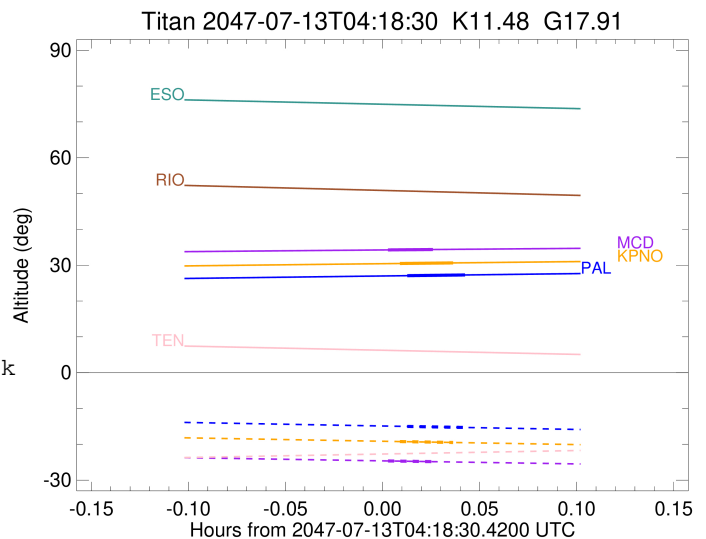

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-13T04:20:10.170
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4070287489344977280
2Mass ID (if available) : 17564069-2224355
ICRS Star Coord at Epoch: 17h 56m 40.69660s -22:24:35.70120s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 11.477
G magnitude          : 17.912
RP magnitude         : 16.416
BP magnitude         : 20.546
DUPflag             : 0
Distance (au)        : 9.087
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -21.03
Sun-Target sep (deg) : 159.12
Sun-Moon sep (deg)  : 90.88
B (ring opening deg) : 26.56
PA of pole (deg)    : 5.60
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.348
C/A sky separation (km) : 2292.1
NAIF SPICE kernels  : RAJobs_U111+rgf16.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk

```

x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|--------|-----|-------------------------|-------|---------|--------|---------|--------------|
| Titan | I | 2047-07-13T04:19:15.264 | 27.07 | -15.01 | 2575.1 | -59.91 | -59.92 |
| Titan | E | 2047-07-13T04:21:05.070 | 27.27 | -15.30 | 2575.1 | -43.61 | -43.63 |



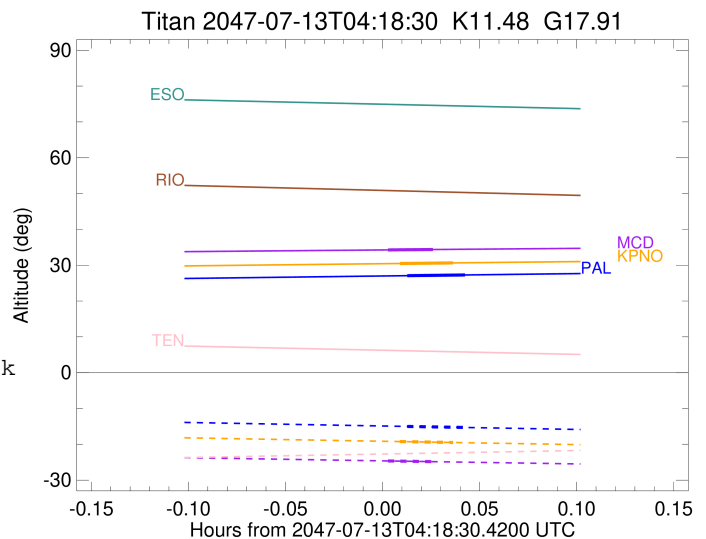
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-13T04:19:51.730
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4070287489344977280
2Mass ID (if available) : 17564069-2224355
ICRS Star Coord at Epoch: 17h 56m 40.69660s -22:24:35.70120s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 11.477
G magnitude          : 17.912
RP magnitude         : 16.416
BP magnitude         : 20.546
DUPflag             : 0
Distance (au)        : 9.087
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -21.03
Sun-Target sep (deg) : 159.12
Sun-Moon sep (deg)  : 90.93
B (ring opening deg) : 26.56
PA of pole (deg)    : 5.60
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.356
C/A sky separation (km) : 2344.3
NAIF SPICE kernels  : RAJobs_U111+rgf16.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk

```

x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|--------|-----|-------------------------|-------|---------|--------|---------|--------------|
| Titan | I | 2047-07-13T04:19:01.934 | 30.47 | -19.23 | 2575.1 | -61.01 | -61.03 |
| Titan | E | 2047-07-13T04:20:41.537 | 30.63 | -19.49 | 2575.1 | -45.72 | -45.73 |



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-13T04:19:21.780
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : MCD
Location             : McDonald Obs. 2.7m
Latitude (deg)       : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)        : 2.075
Gaia source ID       : 4070287489344977280
2Mass ID (if available) : 17564069-2224355
ICRS Star Coord at Epoch: 17h 56m 40.69660s -22:24:35.70120s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 11.477
G magnitude           : 17.912
RP magnitude          : 16.416
BP magnitude          : 20.546
DUPflag              : 0
Distance (au)         : 9.087
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -21.03
Sun-Target sep (deg) : 159.12
Sun-Moon sep (deg)   : 90.98
B (ring opening deg) : 26.56
PA of pole (deg)     : 5.60
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.365
C/A sky separation (km) : 2408.1
NAIF SPICE kernels   : RAJobs_U111+rgf16.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk

```

x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|--------|-----|-------------------------|-------|---------|--------|---------|--------------|
| Titan | I | 2047-07-13T04:18:39.187 | 34.26 | -24.64 | 2575.1 | -62.23 | -62.24 |
| Titan | E | 2047-07-13T04:20:04.369 | 34.37 | -24.84 | 2575.1 | -48.54 | -48.56 |

